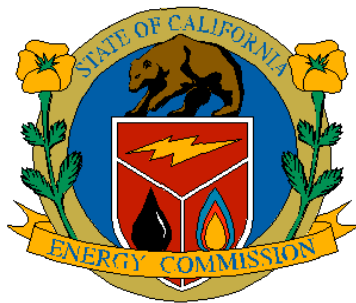




PIER Sponsored Climate Change Research in California

Guido Franco
Public Interest Energy Research (PIER) Program
September 14, 2005



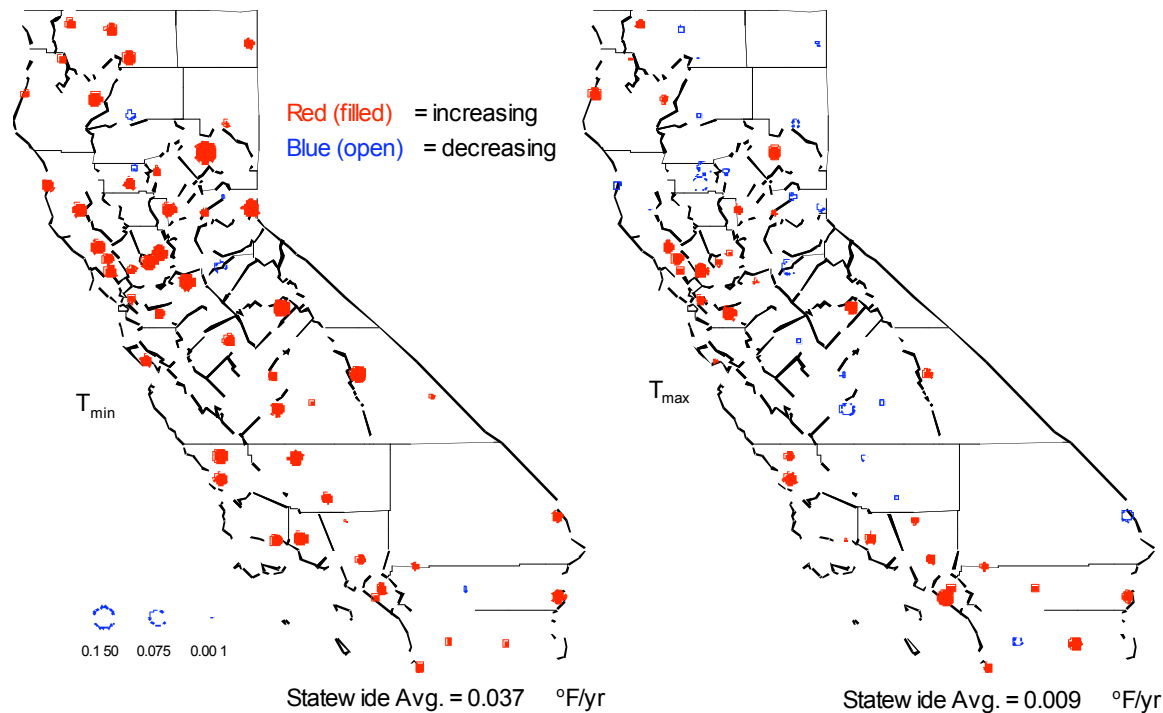


- Background Information
- PIER Research Plan and Implementation
- Examples of existing and new projects



Background Information

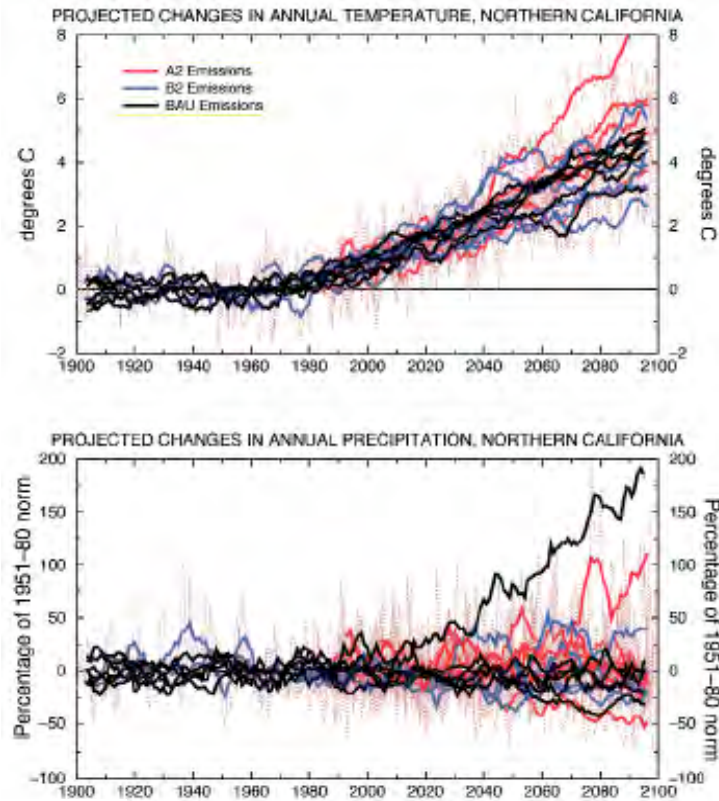
Temperature Trends in California



Data Source: U.S. Historical Climatology Network


Summer

Projected Change in Temperature and Precipitation in Northern California



Source: Dettinger 2004

Past Studies

- 
- 1988 CEC Climate Change Study prepared for the Governor and the Legislature
 - Wilkinson, R., *The Potential Consequences of Climate Variability and Change for California* 2002.
 - *Global Climate Change and California: Potential Implications for Ecosystems, Health, and the Economy*. PIER CEC, 2003.
 - Hayhoe, K., et al., “Emissions pathways, climate change, and impacts on California.” *PNAS* 2004.

Overall Conclusions



- Climate Change has the potential to severely affect every sector of California's economy.
- Ecological impacts will be severe. There is urgent need to develop coping strategies



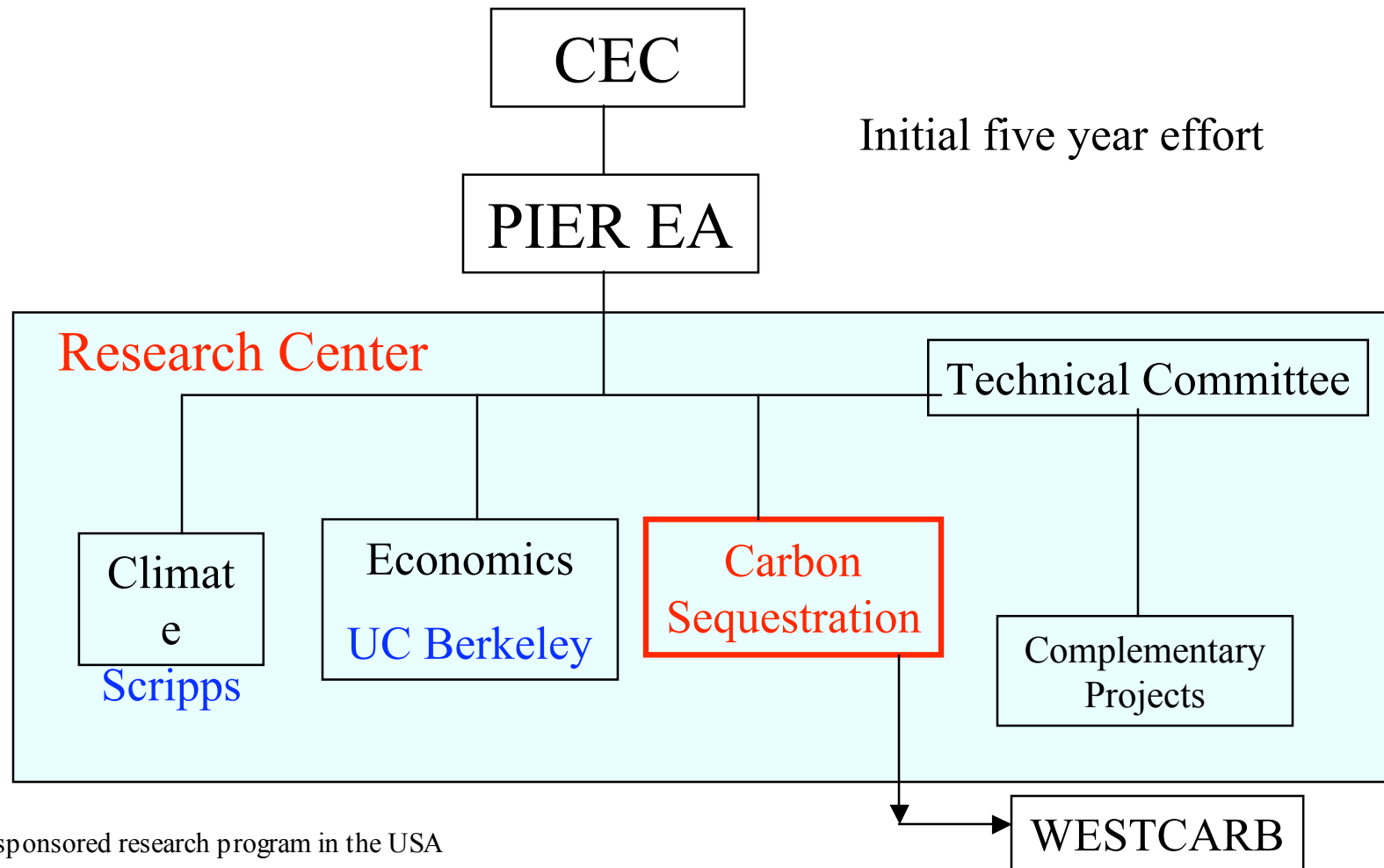
PIER Research Plan and Implementation

PIER Research Plan



- Based on 7 roadmaps of research prepared by technical experts and with strong participation by different state agencies and researchers.
- It provides a long-term strategic view for our research program
- Goals
 - Improve the state-of-science/art regarding climate change and its physical and economic impacts on California.
 - Produce policy relevant research that will allow the state to develop sound mitigation and coping strategies

CA Climate Change Center



First state sponsored research program in the USA



Relevant Partners

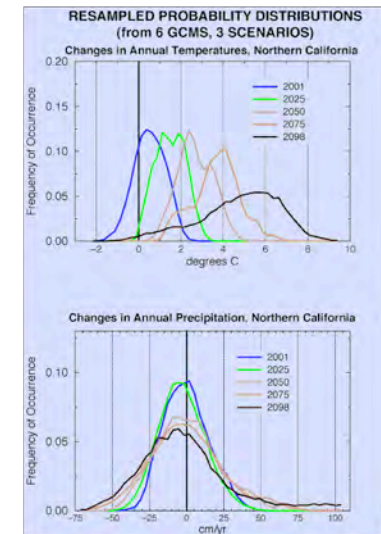
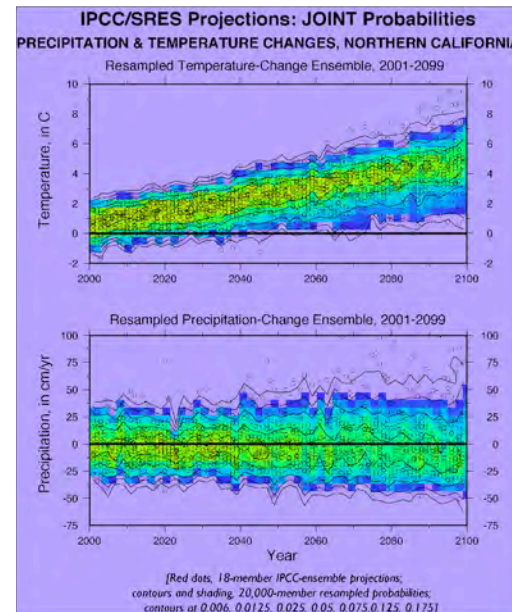
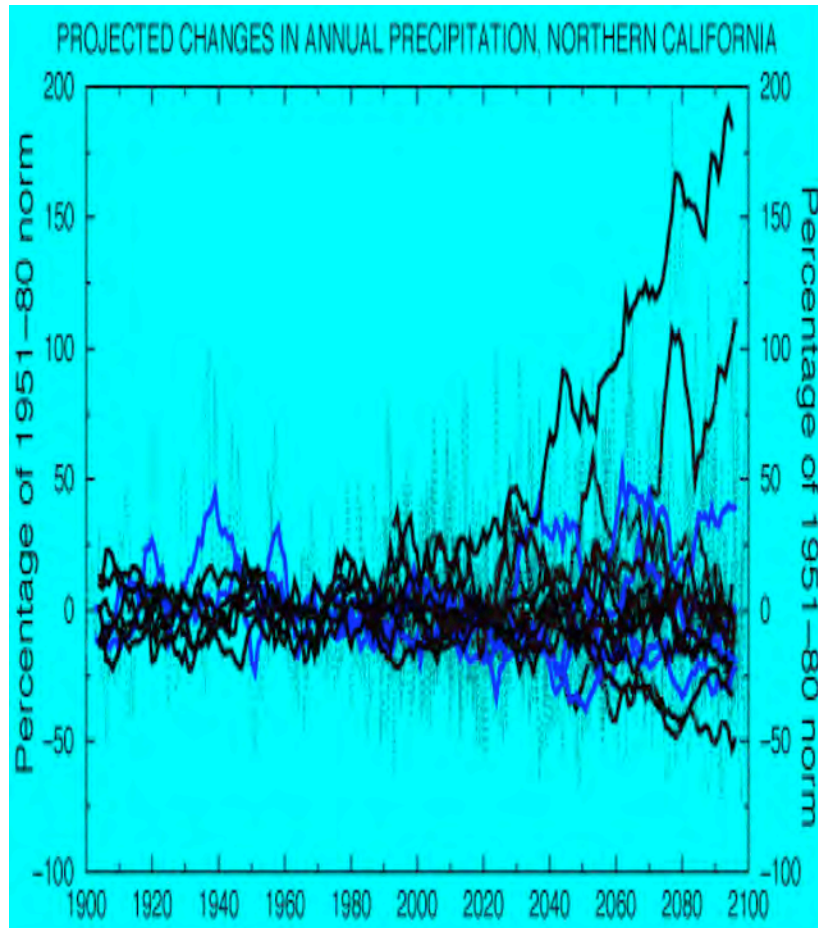


- CalEPA and the Resources Agency
- Department of Water Resources
- California Department of Forestry and Fire Protection
- California Department of Food and Agriculture
- Air Resources Board
- Integrated Waste Management Board
- Kearney Foundation
- CA Climate Change Registry, US DOE, NOAA, and private institutions.



Some Illustrative Projects

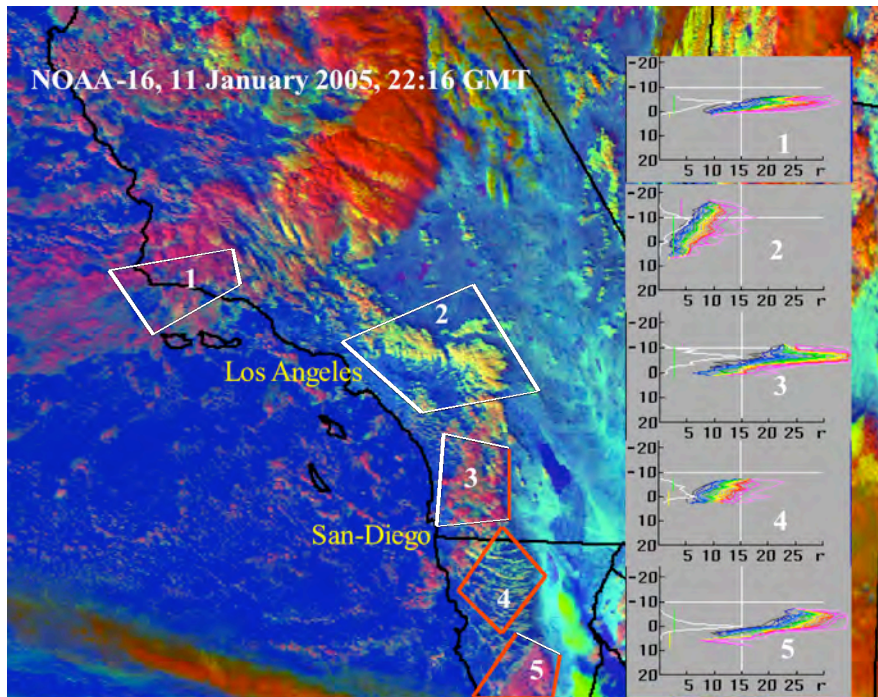
Probabilistic Climate Projections for California



Source: Mike Dettinger 2004

For research and long-term planning

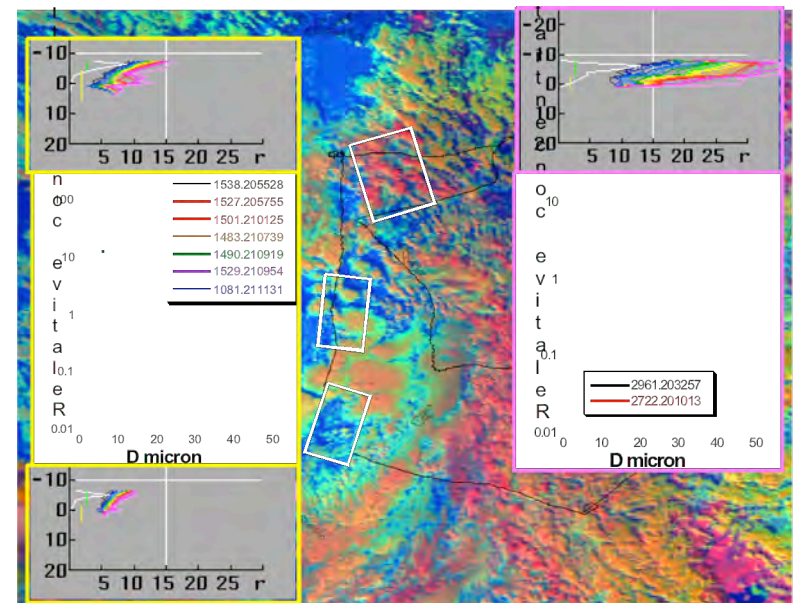
Role of Aerosols on Precipitation Levels in high elevations



Satellite Analyses

Source: On-going PIER Project
Rosenfeld et al. 2005

Research Aircraft
February 2005 Field Campaign





GHG Inventory Related Projects



- **Development of Energy Balances for the State of California- LBNL**
- **Changes of Carbon Stocks in California Lands - Winrock**
- **Research Roadmap for Greenhouse Gas Inventory Methods -UC Berkeley, LBNL, PIER**
- **Assessment of Carbon Sequestration Potential in California Agricultural Soils - UC Davis**
- **Developing and Applying Process-based Models for Estimating GHG and Air Emissions from California Dairies - Applied Geosolutions, LLC, Fresno State U., UC Davis, UC Riverside**
- **Improved Methods to Estimate Methane Landfill Emissions**
- **Monitoring of Non-CO2 Gases in the Atmosphere - LBNL**

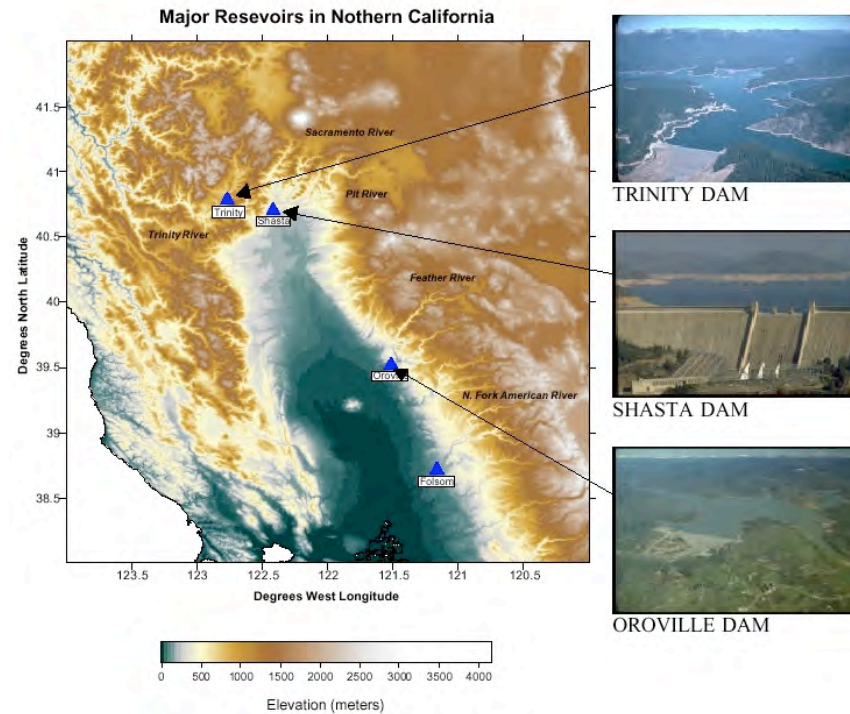


Potential to Reduce Net GHG Emissions in CA



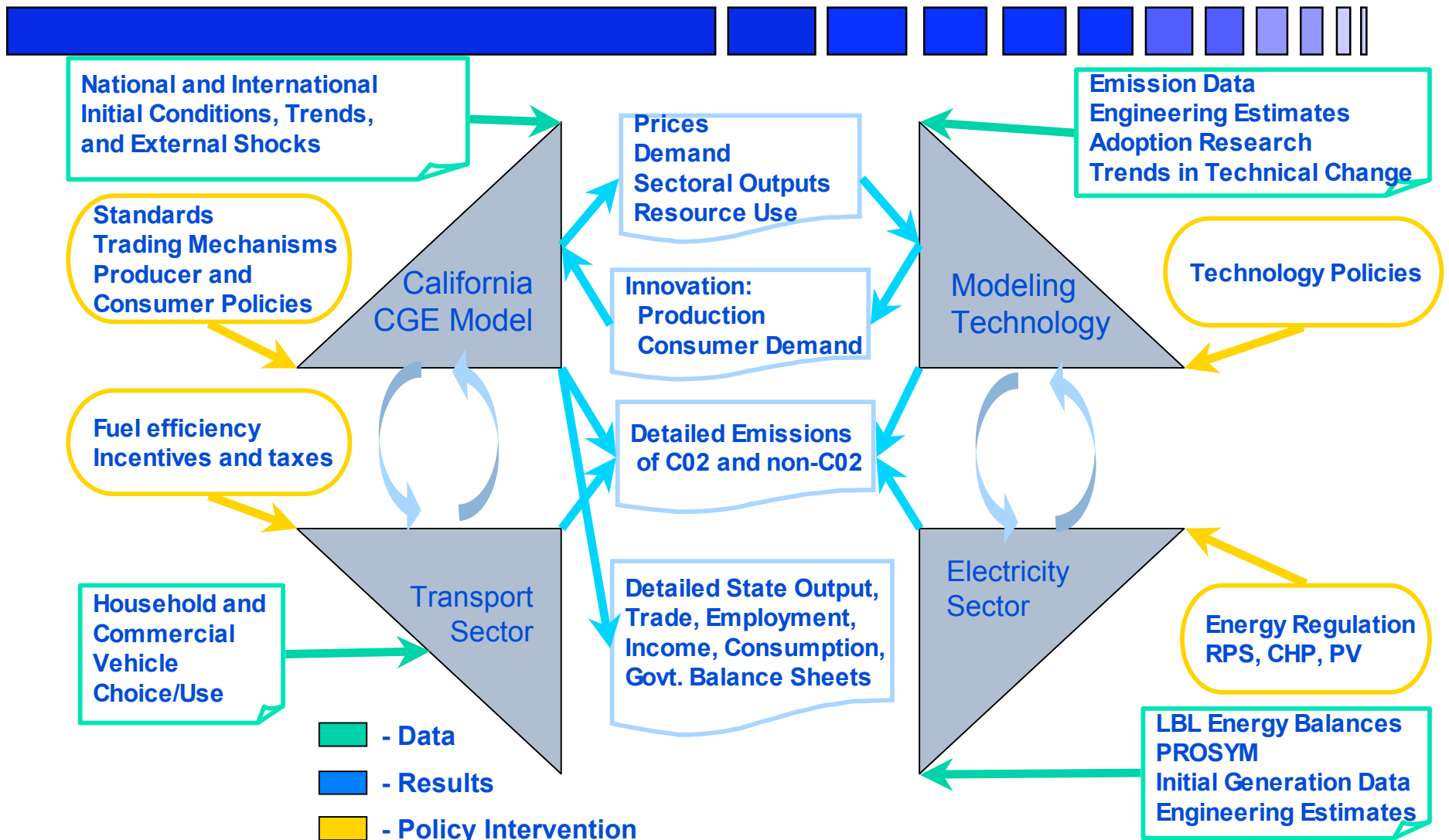
- **Optimization of Product Life Cycles to Reduce Greenhouse Gas Emissions in California -LBNL**
- **Emission Reduction Opportunities for Non-CO2 Greenhouse Gases in California -ICF**
- **Carbon Supply From Changes In Management of Forest, Range, and Agricultural Lands of California - Winrock**
- **WESTCARB: Developing Sequestration Options for the West Coast: Phase II**
- **Assessment of Carbon Sequestration Potential in California Agricultural Soils - UC Davis**
- **Development of Long-Term Energy Efficiency Supply Curves - Quantum, LBNL**

Adaptation to Climate Variability and Change



INFORM Project – funded by NOAA, CALFED, CEC

Macroeconomic Impacts





Thank you!

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